ORDER NO. AVD86020205C8

Service Manual

SPEAKER SYSTEM

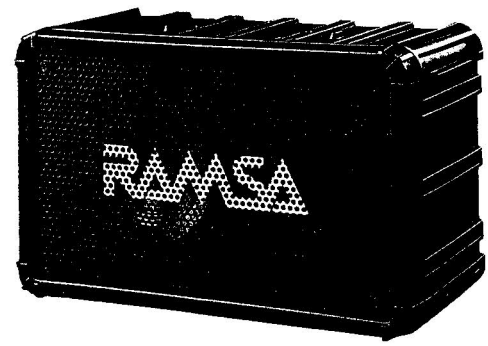
WS-A80E, WS-A80N

SPECIFICATIONS

Type:	2-way, bass reflex type
Input impedance:	8 ohms
Power handling capacity:	160 W (continuous program input) 80 W (RMS)*
Sound pressure level:	92 dB (1 W, 1 m)
Frequency response:	65 to 20,000 Hz
Crossover frequency:	2,500 Hz
Speaker:	Woofer: 20 cm cone speaker Tweeter: Twin Bessel horn speaker
Dispersion:	60° (horizontal) x 60° (vertical)
Dimensions:	434 (W) x 282 (H) x 237 (D) mm
Weight:	Approx. 7.5 kg
Finish:	Enclosure: Resin molded, black Front panel: Punched grille, black

*True effective power measured by the test method prescribed by AMERICAN NATIONAL STANDARD EIA (Electronic Industries Association) RS-426-A (1980).
In this test, a noise signal with an increased high frequency power component was used as a test signal to match the latest program sources.

RAMSA



WS-A80E

ACCESSORY

Operating Instructions 1

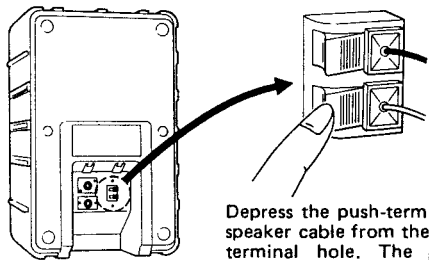
National/Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

CONNECTION OF SPEAKER CABLES

There are two types of speaker input terminals which should be selected according to applications. (The three terminals are internally connected in parallel.)

■ Use of push-terminals

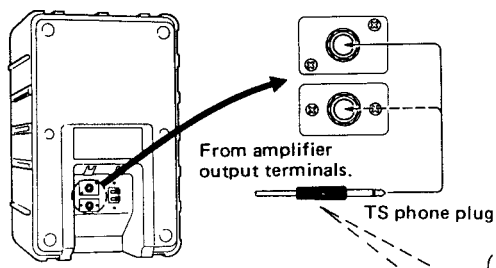


Depress the push-terminal and insert the speaker cable from the amplifier into the terminal hole. The plus (+) side is marked red and the minus (–) side marked black.

NOTES:

- The cable which fits in the hole of the push-terminal, should have a diameter not larger than 2.6 mm. To ensure proper fit to the terminal, a cable diameter of less than 2 mm is recommended.
- The sheath of the speaker cable should not be inserted into the terminal hole.
- When the speaker cable is of a stranded type, the core conductor should be twisted before inserting it into the terminal hole.

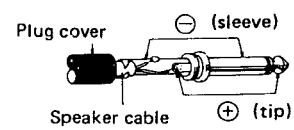
■ Use of phone jacks



NOTES:

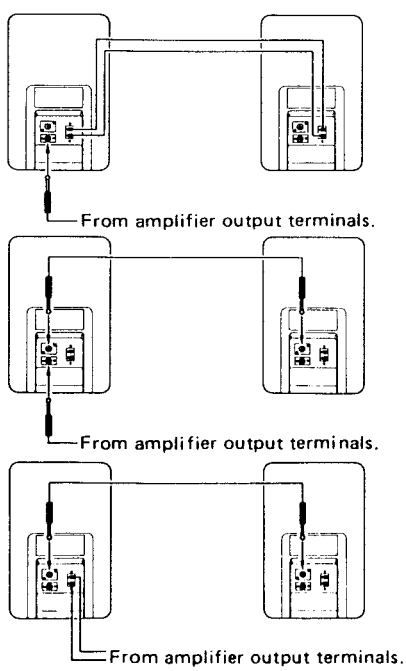
- Connect the speaker cable to a tip-sleeve (TS) phone plug, then connect it to either jack.
- The other jack is then used when installing an additional speaker in parallel.

The speaker uses a TS phone plugs as an input terminal. When connecting, make sure that the polarity of the TS phone plug matches the polarity of the amplifier output terminals (speaker terminal) as shown in the illustration.



■ Installation of additional speakers

Connect the speakers in parallel as shown below.



When two speakers are connected in parallel, the combined impedance becomes 4 ohms. In this case, the speakers should be connected to an amplifier which is designed to drive a load impedance of 4 ohms or less.

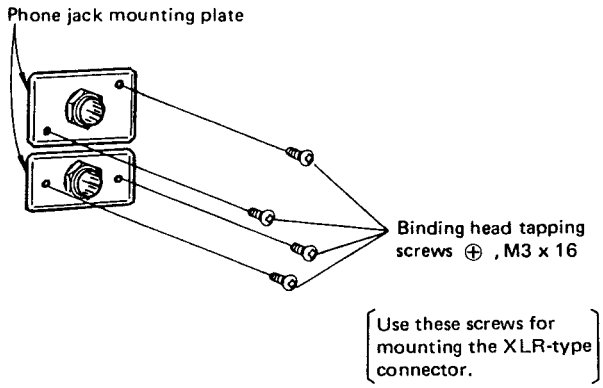
NOTES:

- When three or more speakers are connected in parallel, the combined impedance becomes 3 ohms or less which requires a special type of amplifier. Therefore, do not use more than two speakers for parallel connection.
- If the combined impedance of the speakers is lower than the specified impedance on the amplifier to be used, the sound from the speakers may be distorted or the amplifier may be damaged.
- When two speakers are used in parallel, make sure that the polarity of these speakers are the same.

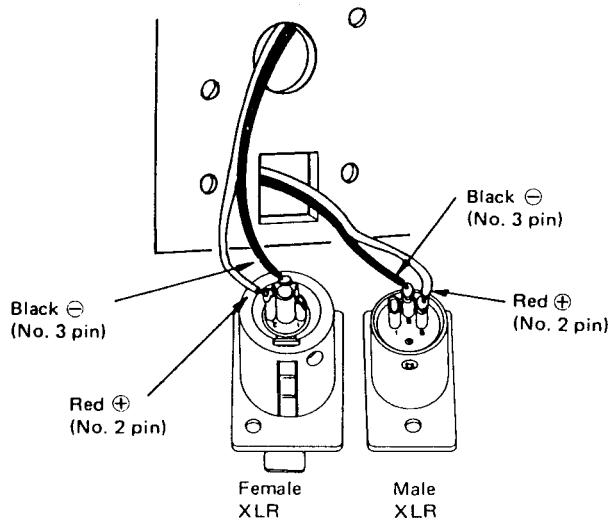
USE OF XLR-TYPE CONECTOR

This speaker may be fitted with an XLR-type connector which is often used for professional applications.

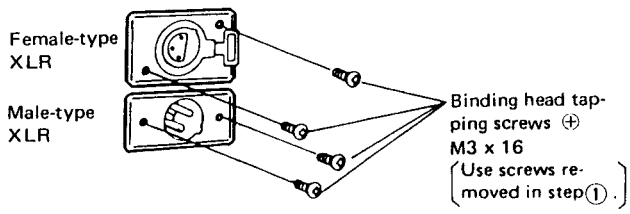
① Remove the phone jack mounting plate and pull it forward. Disconnect the wiring.



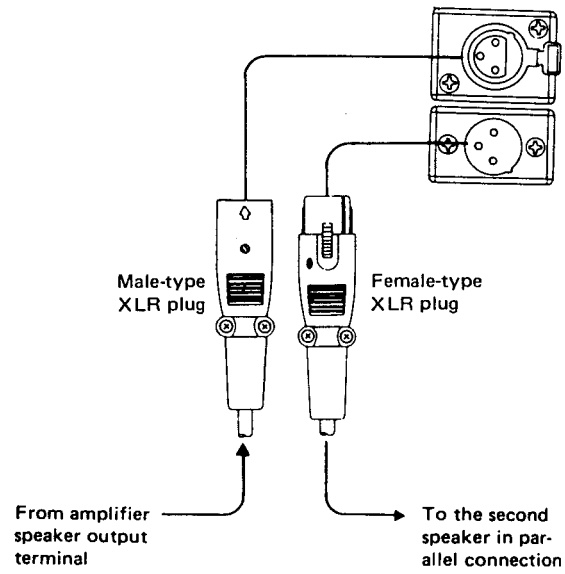
② Solder the leads that were disconnected in step ① as shown below (⊕ on pin 2, ⊖ on pin 3), mount a female-type XLR on the top and a male-type XLR on the bottom.



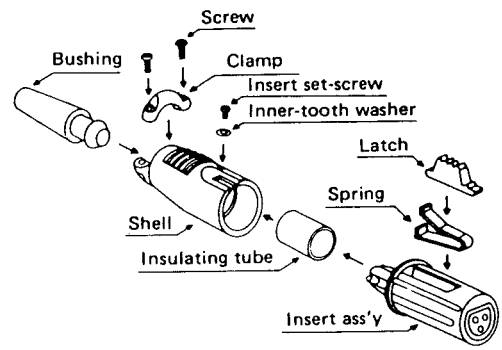
③ Secure the XLR-type connectors with the screws which were removed in step ① , as illustrated.



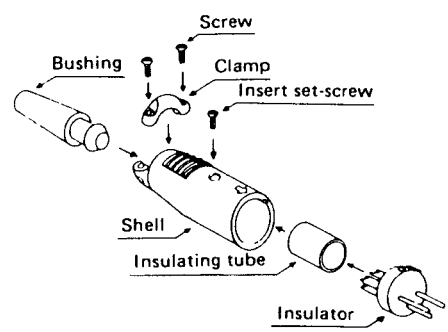
For connection, use XLR-type plug.


Male-type XLR plug
Female-type XLR plug
From amplifier speaker output terminal
To the second speaker in parallel connection

- **Disassembly diagram of typical Female XLR plug**

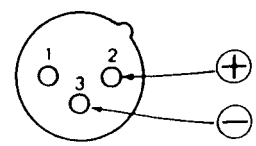


- **Disassembly diagram of typical Male XLR plug**



NOTE:

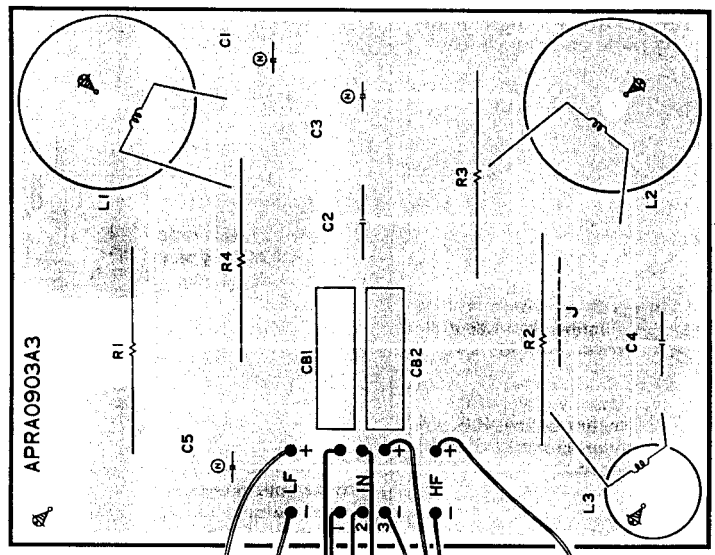
- When using XLR-type connectors, observe the polarity as shown below.



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

— View from components side —

NETWORK CIRCUIT BOARD (APRA0903A3)



SP 1
Woofer
EAS20PL247S

SP 2
Tweeter
EAS25KH27S

CN 1
Connector
YWUG005806

JK 1
Jack
HLJ027501080

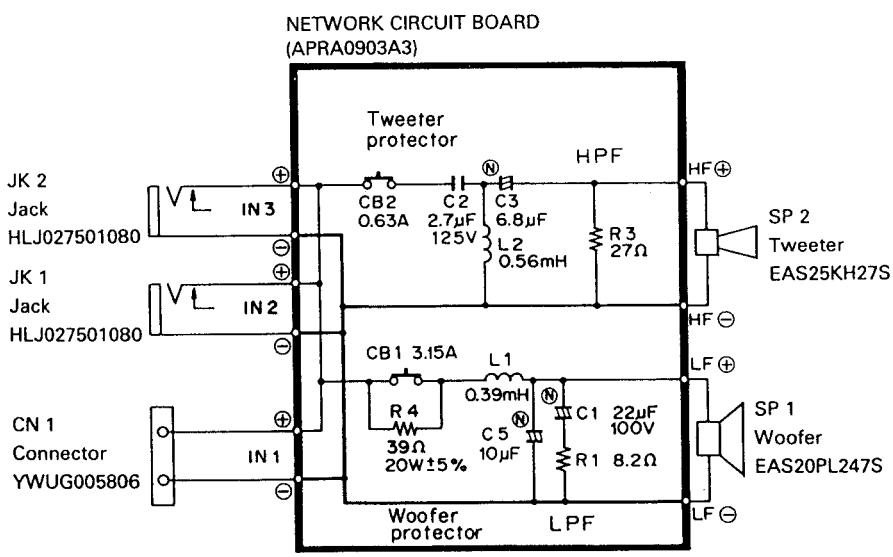
JK 2
Jack
HLJ027501080

The plus (+) side is marked red and the minus (–) side is marked black.

Notes:

- The mark Ⓝ shows non-polarized aluminum electrolytic capacitor.
- HPF: High Pass Filter
- LPF: Low Pass Filter
- All resistor values are in ohms 20W ±10% unless otherwise specified.
- All capacitor values are in farads 50V unless otherwise specified.
- Do not order components by part no. written on schematic diagram. Use replacement parts list (See the back cover).

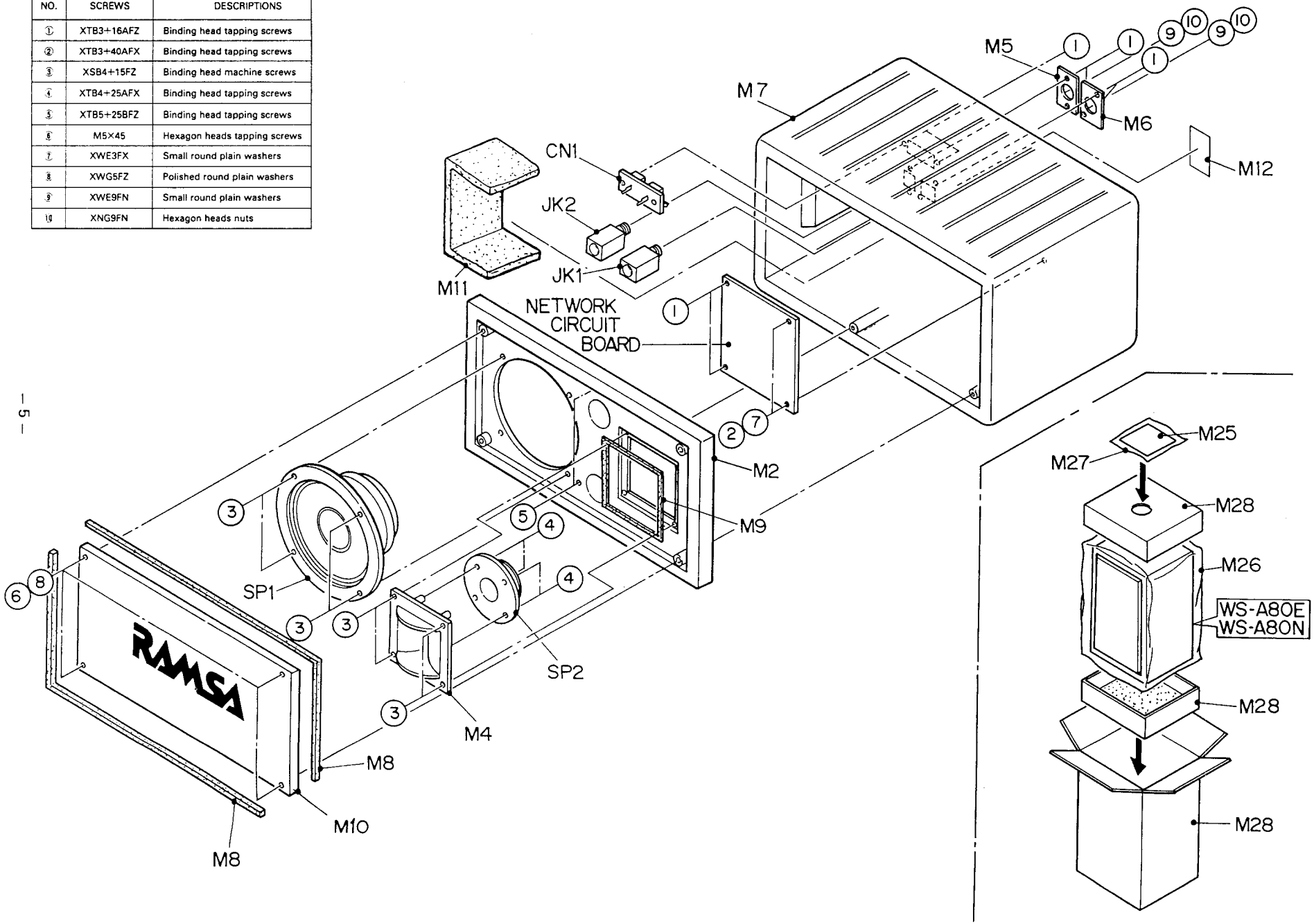
SCHEMATIC DIAGRAM



EXPLODED VIEW

○ **Numbers show screws, washers, nuts, etc.**

NO.	SCREWS	DESCRIPTIONS
①	XTB3+16AFZ	Binding head tapping screws
②	XTB3+40AFX	Binding head tapping screws
③	XSB4+15FZ	Binding head machine screws
④	XTB4+25AFX	Binding head tapping screws
⑤	XTB5+25BFZ	Binding head tapping screws
⑥	M5×45	Hexagon heads tapping screws
⑦	XWE3FX	Small round plain washers
⑧	XWG5FZ	Polished round plain washers
⑨	XWE9FN	Small round plain washers
⑩	XNG9FN	Hexagon heads nuts



REPLACEMENT PARTS LIST

Important Notice

- Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- Components identified by * mark are new parts used from this model.

SYMBOL NO.		PART NO.	PART CODE	DESCRIPTION
MISCELLANEOUS				
SP1		EAS20PL247S	001 260 3579 2	Speaker, Woofer
SP2		EAS25KH27S	001 260 3580 9	Speaker, Tweeter
CN1		YWUG005806	003 430 2343 2	Connector, 2P Push
M2	*	YWA5KA0498B1	060 800 1727 4	Grille
M4	*	YWA6HA0042A2	060 800 1660 6	Horn (60° x 60°)
M5		YWA6GA0007A4	060 630 0878 0	Plate, Fixing Jack (JK 1)
M6		YWP9200LM06	060 840 2287 9	Plate, Fixing Jack (JK 2)
M7	*	YWA9AA0289A3	060 990 1375 7	Enclosure Ass'y
M8	*	YWA2FA0230A4	060 653 1133 3	Cushion (x2)
M9	*	YWA2FA0238A4	060 653 1134 2	Cushion, Horn
M10	*	YWA5SA0125A3	060 844 0199 6	Front net
M11	*	YWA7AA0154A4	060 612 0366 1	Sound Filter
M12	*	YWA7QA0894A4	060 861 5665 4	Main Label [WS-A80E only]
	*	YWA7QA0923A4	060 861 5713 3	Main Label [WS-A80N only]

SYMBOL NO.	PART NO.	PART CODE	DESCRIPTION
NETWORK CIRCUIT BOARD APRA0903A3			
R1	ERF20ZXK8R2	001 150 2403 2	Wirewound 8.2Ω 20W
R3	ERF20ZXK270	001 150 2642 9	Wirewound 27Ω 20W
R4	ERF20ZXJ390	001 150 2641 0	Wirewound 39Ω 20W
C1	ECEA100Y22K	001 120 0537 5	Electrolytic 22μF 100V
C2	ECQE1275KN	001 106 4420 3	Plastic 2.7μF 125V
C3	YWRBL50V6R8	001 120 5297 2	Electrolytic 6.8μF 50V
C5	YWRBL50V100	001 120 5296 3	Electrolytic 10μF 50V
L1	SLCSB391KU	001 211 2492 7	Coil 0.39mH
L2	SLCSB561KU	001 210 6985 0	Coil 0.56mH
CB1	YWBC5823A315	003 452 0535 2	Breaker 3.15A
CB2	YWBC5823A063	003 452 0617 1	Breaker 0.63A
JK1,2	HLJ027501080	003 400 4517 8	Jack (x2)
ACCESSORIES/PACKAGING			
M25 *	YWA8QA0682AN	060 983 2242 6	Operating Instructions [WS-A80E only]
*	YWA8QA0704AN	060 983 2294 4	Operating Instructions [WS-A80N only]
M26	YWA8EA0047A4	060 978 0352 0	Polyethylene Bag, Main
M27	YWT25X35C05	060 978 0360 0	Polyethylene Bag, O/I
M28 *	YWSA80EHA1A	060 971 2268 2	Packaging Ass'y [WS-A80E only]
*	YWSA80NHA1	060 971 2270 8	Packaging Ass'y [WS-A80N only]

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(B)